DURAVIS 3000 SERIES

User Manual

MNL-0551-01
revA2
REF. ECO-1390
Effective: 26-APR-07

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IMPORTANT INFORMATION TO THE USER

Before proceeding further, please carefully read the following paragraphs:

Safety Notices and warnings

FCC information and compliance

This device has been designed to comply with the limits of a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference. The device generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications or to devices that are not appropriately shielded.

Parvus is not responsible for any radio or device, which may be affected by harmful interference. Appropriate shielding of susceptible devices is not the responsibility of Parvus. Further, Parvus is not responsible for unauthorized modifications of Parvus equipment including the substitution or attachment of cables and/or other unauthorized equipment. If electrical interference is harmfully affecting a device, it is the responsibility of the user to correct this interference.

In order to minimize the affects of electrical interference, use only shielded data cables with the system.
In accordance with FCC 15.21, changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Emissions information for Canada
This Class B digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

CE Marking

CE This equipment complies with the requirements for CE marking when used in a residential, commercial, vehicular or light industrial environment.

RAEE

The information below is issued in compliance with the regulations as set out by the 2002/96/CE directive, subsequently superseded by 2003/108/CE, and refers electrical and electronic equipment and the management of their waste (WEEE). When disposing of a device, including all of its components, subassemblies and materials that are an integral part of the product, you should take the WEEE directive into consideration.

This symbol has been attached to the equipment or, in the case that this is not possible, on the packaging, instruction literature and/or the guarantee sheet. By using this symbol it states that the device has been marketed after August 13th 2005, and implies that you must separate all of its components when possible, and dispose of them in accordance with local waste disposal legislations.

- Because of the substances present in the equipment, an improper use or disposal of the refuse can cause damage to human health and to the environment.
- With reference to RAEE, it is compulsory to not dispose of the equipment with normal urban refuse, arrangements should be instigated for separate collection and disposal.
- For more detailed information about recycling of RAEE, please contact your local waste collection body.
- In case of illicit disposal, sanctions will be levied on transgressors.

Anti-static precautions

Always use appropriate antistatic precautions when handing any board. This is to avoid damage caused by ESD (Electro Static Discharge).

Conventions

The following table lists the conventions that are used throughout this manual.

Icon	Notice Type	Description
	Information note	Important features or instructions
	Warning	Information to alert you to potential damage to a program, system or device or potential personal injury

The “Mode” of the register:

R/W Read and write register.
RO Read only register.
W Meaning of the register when written.
R Meaning of the register when read.

Hexadecimal numbers:

Hexadecimal numbers are indicated with an “h” suffix (for example: 11Ch).

Other:

NC Not internally connected
Reserved Use reserved to Factory

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Chapter 1 Introduction

Overview

The DuraVIS 3000 is an LED backlit display that includes internal shock mitigation as well as digital intensity control. Signals from a 640x480 VGA source are used to drive the display. The following information is supplied as a description of the state of this product and some of the options that are available.

Function Highlights

- The VGA inputs are through a Standard VGA connector. Additional signals are assigned on the outputs of the Video Driver and the input to the Display. The pin assignments are listed in Chapter 2.
- The DuraVIS 3000 requires a 14 to 35 VDC power source. To ensure a clear picture, use a shielded cable for incoming power. The power can be supplied by either video DB15HD Connectors.
- Input power has an EMI pi filter configuration.
- The display is reverse bias protected.
- Display orientation can be inverted(see Chapter 4)
- The backlight offers 30 levels of brightness at over eight hundred nit.

Durability

- The case is made of anodized black 6061T6 aluminum for EMI shielding.
- The LCD is cradled in a molded shock cushion for high vibration and shock operation.
- The acrylic window can take a heavy sharp blow without damage to the LCD, although, the window may be scratched.
- The front protective window is anti-reflective coated and ITO coated for glare and EMI control.
- Vinyl protective sheet is placed over the display screen during shipping to prevent damage.
- An external protective boot is available for added handling protection.

parvus
EVGA
DVGA

Chapter 2 Video Port Pin-outs

The DuraVIS 3000 is equipped with two DB15HD input ports: One that is labeled DVGA/VGA and the other labeled EVGA. Input power is applied on pins 11 and 12 of either input port. You can supply the power on the same connector as the video signal, or you can supply power on the unused connector. For Instance, if you were supplying an EVGA signal, you could apply the power to the EVGA connector or the DVGA/VGA connector. Be sure to only use one power supply.

The following tables indicate the pin-outs of the video ports of the DuraVIS 3000. Figure 2 depicts the signal names and pin assignments for the DVGA/VGA high density DB 15 connector. Figure 3 depicts the pin-out of the EVGA high density DB 15 connector.

DVGA/VGA signals

DVGA (Differential VGA) is a video format created by Parvus Corporation to drive VGA signals over long distances. DVGA requires all of the signals of a regular VGA cable plus pins 9 and 10. See Table 1.
The DVGA/VGA port on the display is able to handle two video formats: DVGA and VGA. The display will automatically detect the video format (VGA or DVGA) and display the video image to the LCD.

The VGA/DVGA interface will support ***Standard VGA*** or ***Parvus Differential Sync VGA*** via this connector. The Video pin-out signal connections are shown in the table below. NOTE: *While the display supports VESA VGA signals, the interface connector is NOT a VESA VGA port. Care should be taken when connecting to this port to ensure proper signal connections. When used with VESA VGA only the 9 Video signals should be connected, with all other pins left unconnected. A PC DB15HD VGA Cable should not be used with this interface connector.*

Pin Number	Signal Name	Input / Output	Comments
1	Red	Input	VGA Signal
2	Green	Input	VGA Signal
3	Blue	Input	VGA Signal
4	N/C		
5	N/C		
6	Red Return	Input	VGA Signal
7	Green Return	Input	VGA Signal
8	Blue Return	Input	VGA Signal
9	Horizontal Sync -	Input	Differential Video Signal (optional)
10	Vertical Sync -	Input	Differential Video Signal (optional)
11	VIN	Input	Input Power
12	GND_IN	Input	Input Power
13	Horizontal Sync +	Input	VGA Signal
14	Vertical Sync +	Input	VGA Signal
15	N/C		

Table 1. Figure 1

EVGA signals

EVGA (Encoded VGA) is the new video standard that is used to drive VGA signals over long distances. No individual synchronization signals are necessary. EVGA requires only 6 input signals (see Table 2). The EVGA port of the unit can only handle 640x480 EVGA signals.

Pin Number	Signal Name	Input / Output	Comments
1	Red	Input	EVGA Signal
2	Green	Input	EVGA Signal
3	Blue	Input	EVGA Signal
4	Reserved		
5	N/C		
6	Red Return	Input	EVGA Signal
7	Green Return	Input	EVGA Signal
8	Blue Return	Input	EVGA Signal
9	Reserved		
10	N/C		
11	VIN	Input	Input Power
12	GND_IN	Input	Input Power
13	Reserved		
14	Reserved		
15	N/C		

Table 2. Figure 3

Chapter 3 Operational Mode Indicator

The LED in the upper right-hand corner of the display is the Operational Mode Indicator. The following table indicates the modes of operation based on the color displayed by the LED:

Color of the LED	Operational Mode
Red	No Video
Green	Video
Blue	Initializing
Flashing Red and Green	Internal Error

Figure 4

Chapter 4 User Controls

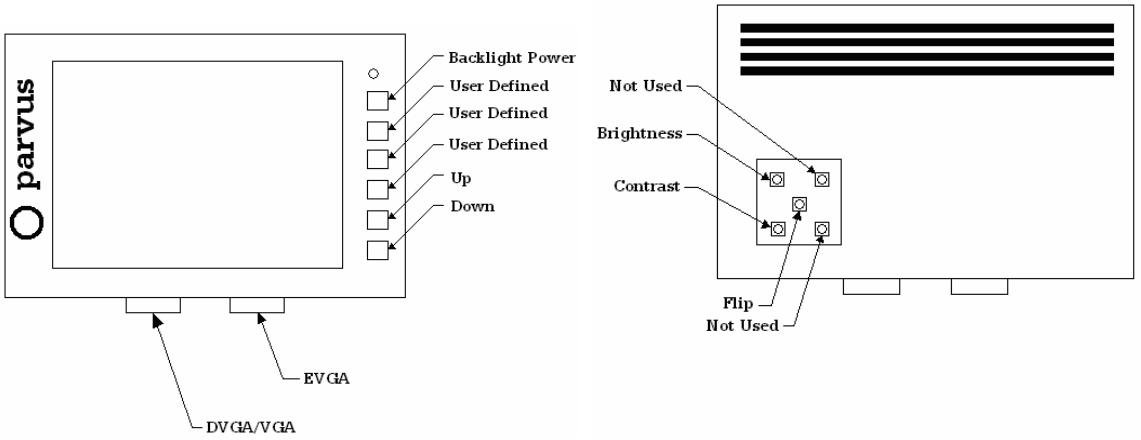

Figure 2: Port and Pushbutton designations for the DuraVIS 3006-20

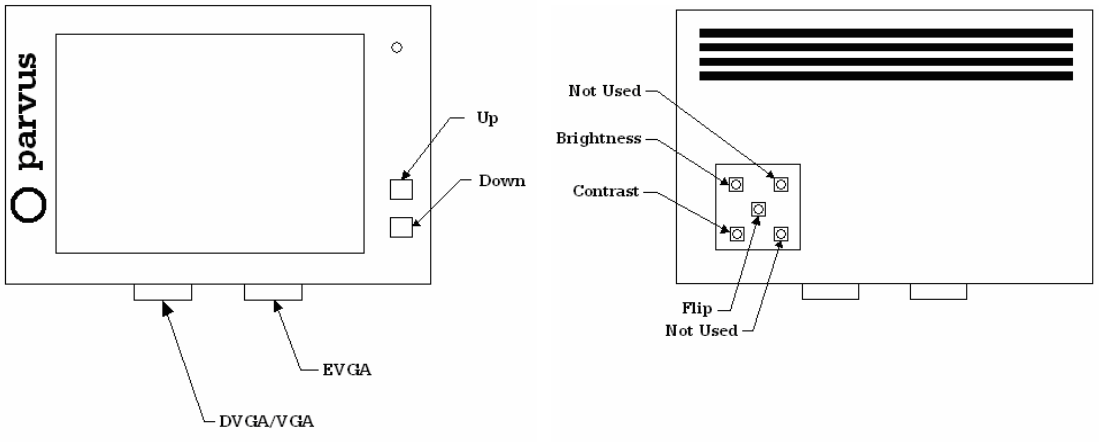

Figure 2: Port and Pushbutton designations for the DuraVIS 3006-00

Power-up Control

The following settings are applied by powering up the display while holding the indicated buttons for the settings/operations listed. It should be noted that the behavior of the buttons is different during power-on than while running. When the display is positioned so that the buttons and LED are on the right side, it is in its standard mounting mode and the display is described as right-side up.

Factory Reset: Simultaneously press the **Up** and **Down** buttons while powering on the unit to return to factory defaults. This sets the backlight to midrange intensity and sets the video to right-side up.

Invert Video: If it is necessary to mount the display upside-down, the displayed image can be inverted by holding the **Down** button while powering on the display. Important note: in inverted mode, the buttons on the front swap functions. I.e. when the display is mounted upside-down, the topmost button increases the backlight intensity and the bottommost button decreases the backlight intensity.

Normal Video: If the display has been inverted as discussed above, the display can be brought back to normal video mode by holding the **Up** button during power-on.

After power-on

The following functions are done by using the buttons after the system has been powered up. It should be noted that the function of the buttons is different when depressed during power on than after power on. When in inverted video mode the **Up** and **Down** buttons swap; thus the topmost intensity button increases backlight intensity.

Up: Increase the intensity of the backlight.

Down: Decrease the intensity of the backlight.

User Defined: These keys are specified by the user.

Backlight Power: This key turns the backlight off.

Back of LCD

Brightness: Push and hold the brightness button while adjusting the brightness with the front up/down keys. This will adjust the video signal brightness, not the backlight intensity.

Video Flip: Push to flip the LCD display.

Contrast: Push and hold the Contrast button while adjusting the contrast with the front up/down keys.

Revision Info: Push both the up and down buttons simultaneously to display the OSD Version information.

Chapter 5 Troubleshooting

Normal Care

The display can be cleaned with a soft cloth, warm soapy water, or alcohol.

The Cooling fins on the back of the display should not be covered

Technical/Sales Assistance

If you have a technical question or if you cannot isolate a problem with your display, please call or e-mail the Parvus Technical Support:

- Email: tsupport@parvus.com
- Phone: +1 (801) 483-1533
- Fax: +1 (801) 483-1523

If you have a sales-related question, please contact your local Sales Representative.

Returning For Service

Before returning any Parvus product, you must contact Parvus to obtain a Returned Material Authorization (**RMA**) number.

Note. You must have the RMA number in order to return any product for any reason!

Pack the module in an anti-static material and ship it in a sturdy cardboard box with enough packing material to adequately cushion it.

Warning! Any product returned to Parvus improperly packed will immediately void the warranty for that particular product!

Appendix

Environmental Testing

MIL-STD-461E
Designed and Tested to the following standards:

- CE-102 Section 5.5; Power Leads, 10 kHz to 10 MHz, basic curve.
- RE-102 Section 5.16; Electric Field, 2 MHz to 18 GHz, two configurations, figure RE102-3 internal fixed wing < 25 meters.

MIL-STD-810F
Designed and Tested to the following standards:

- High Temperature Section 501
- Low Temperature Section 502
- Vibration Section 514
- Shock Section 516

For more information about this or other products in the Parvus line of embedded systems solutions, call (801) 483-1533 from 8:00AM to 5:00PM Mountain Time, E-mail us at sales@parvus.com or visit our web-site at: http://www.parvus.com

LIMITED WARRANTY

Parvus Corporation warrants this product to be free of defects in materials and workmanship, and that the product meets or exceeds the current specifications published by Parvus. This Warranty is valid for a period of one (1) year from the date of purchase. Parvus reserves the right to repair or replace any Warranted products at its sole discretion. Any product returned to Parvus for repair or replacement under the provisions of this warranty must be accompanied by a valid Return Material Authorization (RMA) number issued by the Parvus Customer Service Department.

Parvus Corporation makes no warranty not expressly set forth in this document. Parvus disclaims and excludes all implied warranties of merchantability and fitness for a particular purpose. The aggregate liability of Parvus arising from or relating to (regardless of the form of action or claim) is limited to the total of all payments made to purchase the product. Parvus shall not in any case be liable for any special, incidental, consequential, indirect or punitive damages, even if Parvus has been advised of the possibility of such damages. Parvus is not responsible for lost profits or revenue, loss of the use of software, loss of data, costs of recreating lost data, or the cost of any substitute equipment or program.

This Warranty shall be governed by the laws of the United States of America and the State of Utah, and any claim brought under this Warranty may only be brought in state or federal court located in Salt Lake County, State of Utah, and purchaser hereby consents to personal jurisdiction in such courts.

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